

What is claimed is:

1. A cleaning formulation for removing materials from a surface, the cleaning formulation comprising from about 0.5 to about 60 weight percent of a compound derived from urea and a phosphorus-containing acid, together with a carrier therefor.
2. The cleaning formulation defined in claim 1, wherein the phosphorus-containing acid is selected from the group comprising orthophosphoric acid, isohypophosphoric acid, diphosphoric acid, triphosphoric acid, polyphosphoric acid, cyclometaphosphoric acid, polymetaphosphoric acids, phosphonic acid, alkylphosphonic acid, arylphosphonic acid, phosphinic acid, dialkylphosphinic acid, diaryl phosphinic acid, alkyl/aryl-phosphinic acids and mixtures thereof.
3. The cleaning formulation defined in claim 1, wherein the phosphorus-containing acid is selected from the group comprising orthophosphoric acid diphosphoric acid, polyphosphoric acid, phosphonic acid, phosphinic acid and mixtures thereof.
4. The cleaning formulation defined in claim 1, wherein the phosphorus-containing acid comprises orthophosphoric acid.
5. The cleaning formulation defined in claim 1, further comprising a surfactant.
6. The cleaning formulation defined in claim 5, wherein the surfactant comprises a non-ionic surfactant.
7. The cleaning formulation defined in claim 6, wherein the non-ionic surfactant comprises a member selected from the group consisting of ethoxylated alcohols, alkanol amide fatty acids, polyglycosides, carbamates, amine oxides and mixtures thereof.

8. The cleaning formulation defined in claim 5, wherein the surfactant comprises an amphoteric surfactant.
9. The cleaning formulation defined in claim 5, wherein the surfactant comprises at least one member selected from the group comprising amphoteric surfactants such as capryl/capramidopropyl betaine, cocamidopropyl betaine and lauramidopropyl betaine, non-ionic surfactants such as ethoxylated alcohols, alkanol amide fatty acids, polyglycosides, carbamates and amine oxides, polyglycosides such as caprylic/capric glycoside and lauryl glycoside and amine oxides such as decylamine oxide, cocodimethylamine oxide, lauryldimethylamine oxide, myristyldimethylamine oxide, strearyldimethylamine oxide and cocamidopropylamine oxide.
10. The cleaning formulation defined in claim 8, wherein the amphoteric surfactant comprises a betaine.
11. The cleaning formulation defined in claim 1, further comprising a polyether silicone.
12. The cleaning formulation defined in claim 1, further comprising a thickener.
13. The cleaning formulation defined in claim 12, wherein the thickener is selected from the group comprising polyethylene glycol, carboxy vinyl polymers, cellulose, hydroxyethylcellulose, methoxycellulose, hydroxyethylmethacrylate, polyvinyl alcohol, starch and mixtures thereof.
14. The cleaning formulation defined in claim 12, wherein the thickener comprises a member selected from the group comprising cross-linked acrylic polymers, alginates, carrageenan, organoclays, clays, guar, polyethylene oxide, polypropylene oxide/polyethylene oxide copolymers, polyvinyl pyrrolidone, polyvinyl alcohol, celluloses such as carboxymethylcellulose and xanthan gum.

15. The cleaning formulation defined in claim 12, wherein the thickener is present in an amount of up to about 10 weight percent.
16. The cleaning formulation defined in claim 1, further comprising a sequestrant agent.
17. The cleaning formulation defined in claim 16, wherein the sequestrant agent is selected from group comprising silicates, citrates, phosphonates, phosphates and mixtures thereof.
18. The cleaning formulation defined in claim 1, wherein the compound is derived from a molar ratio of urea to phosphorus-containing acid in the range of from about 1:10 to 10:1.
19. The cleaning formulation defined in claim 1, wherein the molarity of the solution in urea is in the range of from about 0.05 to about 3M, and the molarity of the salt is in the range of from about 0.05 to about 5M.
20. The cleaning formulation defined in claim 1, further comprising a chelator.
21. The cleaning formulation defined in claim 1, further comprising a phosphorus-containing chelator.
22. The cleaning formulation defined in claim 20, wherein the chelator is selected from the group comprising phosphates, phosphonates and phosphites.
23. The cleaning formulation defined in claim 1, further comprising abrasive particles.
24. The cleaning formulation defined in claim 23, wherein the abrasive particles are selected from the group comprising polymer particles, such as those derived from:

polyethylene; cellulose acetate butyrate; and Nylon-II, and ceramic particles, including those derived from silica, alumina or aluminosilicates.

25. A method for removing materials from a surface comprising the step of application to the surface a cleaning formulation comprising from about 0.5 to about 60 weight percent of a compound derived from urea and a phosphorus-containing acid, together with a carrier therefor.

26. The method defined in claim 25, wherein the phosphorus-containing acid is selected from the group comprising orthophosphoric acid, isohypophosphoric acid, diphosphoric acid, triphosphoric acid, polyphosphoric acid, cyclometaphosphoric acid, polymetaphosphoric acids, phosphonic acid, alkylphosphonic acid, arylphosphonic acid, phosphinic acid, dialkylphosphinic acid, diaryl phosphinic acid, alkyl/aryl-phosphinic acids and mixtures thereof.

27. The method defined in claim 25, wherein the phosphorus-containing acid is selected from the group comprising orthophosphoric acid, diphosphoric acid, polyphosphoric acid, phosphonic acid, phosphinic acid and mixtures thereof.

28. The method defined in claim 25, wherein the phosphorus-containing acid comprises orthophosphoric acid.

29. The method defined in claim 25, further comprising a surfactant.

30. The method defined in claim 29, wherein the surfactant comprises a non-ionic surfactant.

31. The method defined in claim 30, wherein the non-ionic surfactant comprises a member selected from the group consisting of ethoxylated alcohols, alkanol amide fatty acids, polyglycosides, carbamates, amine oxides and mixtures thereof.
32. The method defined in claim 29, wherein the surfactant comprises an amphoteric surfactant.
33. The method defined in claim 29, wherein the surfactant comprises at least one member selected from the group comprising amphoteric surfactants such as capryl/capramidopropyl betaine, cocamidopropyl betaine and lauramidopropyl betaine, non-ionic surfactants such as ethoxylated alcohols, alkanol amide fatty acids, polyglycosides, carbamates and amine oxides, polyglycosides such as caprylic/capric glycoside and lauryl glycoside and amine oxides such as decylamine oxide, cocodimethylamine oxide, lauryldimethylamine oxide, myristyldimethylamine oxide, stearyldimethylamine oxide and cocamidopropylamine oxide.
34. The method defined in claim 32, wherein the amphoteric surfactant comprises a betaine.
35. The method defined in claim 25, further comprising a polyether silicone.
36. The method defined in claim 25, further comprising a thickener.
37. The method defined in claim 36, wherein the thickener is selected from the group comprising polyethylene glycol, carboxy vinyl polymers, cellulose, hydroxyethylcellulose, methoxycellulose, hydroxyethylmethacrylate, polyvinyl alcohol, starch and mixtures thereof.
38. The method defined in claim 36, wherein the thickener comprises a member selected from the group comprising cross-linked acrylic polymers, alginates, carrageenan,

organoclays, clays, guar, polyethylene oxide, polypropylene oxide/polyethylene oxide copolymers, polyvinyl pyrrolidone, polyvinyl alcohol, cellulosics such as carboxymethylcellulose and xanthan gum.

39. The method defined in claim 36, wherein the thickener is present in an amount of up to about 10 weight percent.

40. The method defined in claim 25, further comprising a sequestrant agent.

41. The method defined in claim 40, wherein the sequestrant agent is selected from group comprising silicates, citrates, phosphonates, phosphates and mixtures thereof.

42. The method defined in claim 25, wherein the compound is derived from a molar ratio of urea to phosphorus-containing acid in the range of from about 1:10 to 10:1.

43. The method defined in claim 25, wherein the molarity of the solution in urea is in the range of from about 0.05 to about 3M, and the molarity of the salt is in the range of from about 0.05 to about 5M.

44. The method defined in claim 25, further comprising a chelator.

45. The method defined in claim 25, further comprising a phosphorus-containing chelator.

46. The method defined in claim 44, wherein the chelator is selected from the group comprising phosphates, phosphonates and phosphites.

47. The method defined in claim 25, further comprising abrasive particles.

48. The method defined in claim 47, wherein the abrasive particles are selected from the group comprising polymer particles, such as those derived from: polyethylene; cellulose acetate butyrate; and Nylon-11, and ceramic particles, including those derived from silica, alumina or aluminosilicates.

49. The method defined in claim 25, wherein the surface comprises an optical surface.

50. The method defined in claim 25, wherein the surface comprises an optical radiation surface.

51. The method defined in claim 25, wherein the surface comprises an optical sensor surface.

52. The method defined in claim 25, wherein the surface comprises an optical lens surface.

53. The method defined in claim 52, wherein the optical lens surface comprises a contact lens.

54. The method defined in claim 25, wherein the surface comprises a metal surface.